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EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS²

Office Action Summary

Application No.

09/816,548

Applicant(s)

OHMORI, HIROYUKI

Examiner

Nikolas J. Uhlir

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) none is/are allowed.
- 6) ☒ Claim(s) 1 and 3-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment/arguments dated 4/14/03. The applicants amendments have overcome various 112 rejections that were tendered in the prior office action, including the 112 rejection of claim 2 (rendered moot by cancellation of this claim), the rejection of claims 4-6, 9-12, and 15-16 (improper Markush group terminology), and the rejections of claims 9-10 (unclear composition of groundlayer). However, claim 16 is still held to be unclear, as will be discussed below.
2. Further, applicant's amendment to the abstract has overcome the prior applied objection. Accordingly, the objection to the abstract is withdrawn.
3. Further, the applicants arguments relating to the applied rejections are deemed to be unpersuasive, as will be discussed below in the section entitled "Response to Arguments." Accordingly this action is **FINAL**.

Examiners Note

4. The examiner notes that the applicant has cancelled claim 2 in this amendment. Thus, as a result, the applicants amendments to claim 2 have not been entered.

Specification

5. The disclosure is objected to because of the following informalities: The abstract as amended contains a misspelled word. The word "than" in the last line of the abstract should be "thin."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, it is unclear to the examiner what exactly claim 16 requires. First, it is unclear whether the applicant in this claim requires that the separation layer contain Ru, as the language is so unclear as that it appears that embodiments not containing Ru are claimed. Second, while it is clear that the applicant wishes to claim several different types of separation layers made of different mixtures of materials, it is unclear from the claim language exactly what compositions are being claimed. For example, does the claim language "includes Ru or an Ru alloy, and further includes one of an oxide, a nitride, a carbide, or an oxide, nitride, or carbide mixture and at least one kind of material selected from a first group consisting of Cr, Mo, W, Ti, Ta, Nb, Ni, Cu, Al, V, Zr, Hf, C, B, and Si, and a second group consisting of oxide, nitride, and carbide, the oxide including SiO₂, Al₂O₃, TiO₂, Ta₂O₃, ZrO, Y₂O₃, and MgO, the nitride including TiN, BN, AlN, Si₃N₄, and TaN and the carbide including SiC, TiC, B₄C, and TaC," mean that the separation layer is composed of an Ru or Ru alloy, a first undefined oxide, nitride, or carbide, at least an element selected from the first group, and at least an oxide selected from the second group? This type of separation layer does not appear to be supported by the specification. This issue is further complicated by the language "the separation layer is mixed with at least one kind of material selected from the second group, or the separation layer is mixed with at least one kind of material from the first and second groups" at the end of the claim, because the

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beginning of the claim seems to require that the separation layer comprise a mixture of all of the groups of materials listed (i.e. "and at least one kind of material selected from a first group and a second group"), whereas this language clearly seems to indicate otherwise. Thus, it is very unclear to the examiner exactly which compositions are covered by claim 16.

Claim Rejections - 35 USC § 102

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 3-4, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Futamoto et al. (US6383667).

10. Regarding the limitations of claim 1, wherein the applicant requires a magnetic recording medium comprising: a non-magnetic substrate; a non-magnetic metal ground layer formed on a main surface side of the non-magnetic substrate and containing ≥ 20 at. % Ru; and a magnetic layer formed on the non-magnetic metal ground layer and having a metal magnetic thin film.

11. To be clear on the record, it should be noted that the examiner, while interpreting the claims in light of the specification, must also give the claims their broadest reasonable interpretation. Bearing this in mind, the applicant should note that the examiner interprets "formed on" as recited in the instant claims to allow for additional layers to be present between one layer and another layer that the first layer is "formed on." More succinctly, "formed on" is not interpreted by the examiner as "directly adjacent to," or "directly on the surface of" another layer.

12. With respect to the limitations of claim 1, Futamoto et al. teaches a magnetic recording medium meeting applicant's claim 1 requirements. Specifically, Futamoto et al. teaches a magnetic recording medium that comprises a substrate (equivalent to applicants non-magnetic substrate), a first underlayer having a B2 crystal structure on the substrate, a second underlayer comprising a Co-Ru_x-Cr_y alloy, wherein x is 5-65 atomic % and y is 0-35 at. %, on the first underlayer, and a magnetic layer on the second underlayer (column 13, lines 32-60). In specific embodiments, Futamoto et al. teaches suitable compositions for the second underlayer include CoRu alloys, with the amount of Ru in the alloy as high as 75 at. % (column 16, lines 21-41). Thus, Futamoto et al. anticipates all of the limitations required by the instant claim 1.

13. Regarding the limitations of claim 3, wherein the applicant requires the non-magnetic metal layer to have a graded composition in which a composition of the non-magnetic metal ground layer changes continuously in a film thickness direction. The examiner interprets this claim to require that the concentration of at least one element in the non-magnetic metal layer changes over the thickness of the film. With this in mind, Futamoto et al. teaches that an intermediate underlayer of Cr is present between the 1st underlayer and the second underlayer (column 13, lines 50-55). This results in an underlayer having the structure B2/Cr/CoRu_xCr_y. The examiner takes the position that the limitations of claim 3 are met when a CoRu_xCr_y alloy that contains **any** amount of Cr (many of which are detailed at column 16, lines 30-48) is utilized, as this would result in an underlayer that has a change in the chromium concentration over the film thickness. Thus, the limitations of claim 3 are met.

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14. Regarding the limitations of claim 4, wherein the applicant requires that the non-magnetic metal ground layer be made of an alloy of Ru and at least one of the elements listed, wherein the composite ratio of Ru in the alloy is 50 at% or more. The examiner interprets "composite ratio" to simply mean "the amount of Ru." With respect to these limitations, Futamoto et al. teaches alloys of Co and Ru, wherein the amount of Ru is ≥ 50 at. % or more are suitable for the second underlayer (column 16, lines 21-42). As Co is listed as one of the elements to be alloyed with Ru in claim 4, the limitations of claim 4 are met.

15. Regarding the limitations of claim 12, wherein the applicant requires the magnetic layer to contain at 0.5-25 at. % of at least one kind of material selected from the elements listed. In a specific embodiment, Futamoto et al. utilizes $\text{CoCr}_{17}\text{Pt}_{20}\text{Ta}_3$ as the magnetic layer, wherein the subscripts are in atomic % (column 18, lines 3-12). As Cr and Ta are listed in claim 12 as suitable elements for incorporation into the magnetic layer. Thus the limitations of claim 12 are met.

Claim Rejections - 35 USC § 103

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

17. Claims 5, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. as applied to claim 1 above, further in view of Honda et al. (US5851643).

18. Futamoto et al. does not teach a magnetic recording medium utilizing a non-magnetic metal ground layer made of an alloy of Ru and at least one kind of material

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selected from W, Mo, V, Nb, and B, wherein the composite ratio of Ru in the alloy is 20 at % or more, as required by claim 5.

19. However, Honda et al. teaches a magnetic recording medium that utilizes a structural control underlayer (similar to Futamoto et al.'s 2nd underlayer) that is formed of HCP structure materials comprising an alloy of Ti, Ta, Ru, Hf, or Co materials with Cr, V, or W (column 6, lines 44-50)

20. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to substitute W or V as taught by Honda et al. for the Cr in the CoRu_xCr_y material taught by Futamoto et al.

21. One would have been motivated to make this modification due to the fact that the 2nd underlayer of Futamoto et al. is HCP alloy of Co, Ru, and Cr (see column 14, lines 5-10 of Futamoto et al.), and the fact that Honda et al. teaches the equivalence of adding Cr, V and W to HCP alloys. Applicants are respectfully reminded that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950)

22. Futamoto et al. does not teach a magnetic recording medium wherein the magnetic layer is constructed by a plurality of metal magnetic thin films, with at least one intermediate layer inserted there between, wherein the intermediate layer is made of at least one kind of material selected from Pt, Pd, and Ni, as required by claim 11.

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Further, Futamoto et al. does not teach utilizing an intermediate layer of Ru or Ru alloy as required by claim 15.

23. However, Honda et al. teaches that a magnetic recording medium that exhibits reduced read back noise can be formed by utilizing a magnetic film that is formed by laminating two magnetic layers together with an intervening non-magnetic layer (column 9, lines 55-64).

24. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to utilize the multilayer magnetic film taught by Honda et al. as the magnetic layer in Futamoto et al.

25. One would have been motivated to make this modification due to the teaching Honda et al. that using a multilayer magnetic film reduces the read back noise of a recording medium.

26. Honda et al. teaches that materials that are suitable for the intermediate layer in the multilayer magnetic layer include Ru, Pt, or Pd (column 17, lines 54-61).

27. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to utilize Ru, Pt or Pd as the intermediate layer in the multilayer magnetic film utilized in Futamoto et al. as modified by Honda et al. due to their equivalence as suitable materials for the intermediate layer.

28. Thus, the limitations of claim 11 are met when Pt or Pd is utilized as the intermediate layer, and the limitations of claim 15 are met when Ru is utilized as the intermediate layer.

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29. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. as applied to claim 1 above, and further in view of Shiroishi et al. (US4833020).

30. Futamoto et al. does not teach a non-magnetic metal ground layer made of an alloy of Ru and at least one of Cu, Ni, Pd, Pt, Y, and C, wherein the amount of Ru in the alloy is ≥ 80 at. %, as required by claim 6.

31. However, Shiroishi et al. teaches a magnetic recording medium that comprises a substrate, a first underlayer, a second underlayer, and a magnetic layer, wherein the second underlayer comprises an element selected from Cr, Mo, W, Ru, Os, Pd, V, Nb, Hf, Rh, Pt, or Ir and up to 20% of an element selected from Zr, Si, Ti, Y, Sc, Al, C, Ge, Sb, And Cu. Shiroishi et al. teaches that magnetic media with improved signal to noise ratio are formed when a second underlayer of this type is utilized (column 2, line 13- column 3, line 2).

32. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to substitute an Ru underlayer containing up to 20 atomic % of Cu or C as taught by Shiroishi et al. for the CoRu underlayer taught by Futamoto et al.

33. One would have been motivated to make this modification due to the teaching in Shiroishi et al. that magnetic media exhibiting improved signal top noise ratio are formed when a second underlayer comprising an alloy of Ru with up to 20 atomic % of C or Cu is utilized. Regarding the specific selection of Ru, Cu and C, Ru is taught to be equivalent to the other elements listed as suitable for the main component of the second underlayer, and Cu or C are taught to be equivalent to the other elements listed as

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suitable for the secondary components of the second underlayer. Substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

34. Claims 7-8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. as applied to claim 1 above, and further in view of Suzuki et al. (US6335103)

35. Futamoto et al. does not teach a non-magnetic metal ground layer that contains oxygen and or nitrogen, as required by claim 7, specifically 0.2-10 at. % O or N, as required by claim 8.

36. However, Suzuki et al. teaches that adding 0.1-10 at. % of oxygen to a non-magnetic underlayer of a magnetic recording medium reduces the grain size of the underlayer, which in turn reduces the noise of a magnetic layer deposited on the underlayer (column 11, lines 38-46)

37. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add 0.1-10 at. % oxygen as taught by Suzuki et al. to the CoRu_xCr_y underlayer taught by Futamoto et al..

38. One would have been motivated to make this modification due to the teaching in Suzuki et al. that adding 0.1-10 at. % oxygen to an underlayer of a magnetic recording medium reduces the grain size of the underlayer, thus reducing the noise of a magnetic layer disposed on the underlayer.

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39. Futamoto et al. does not teach a magnetic layer that contains 0.2-15 at. % oxygen or nitrogen, as required by claim 13.

40. However, Suzuki et al teaches that adding 0.1-15 at. % oxygen to a magnetic layer of a magnetic recording layer reduces the grain size of the magnetic layer, thereby reducing the noise of the recording medium (column 3, line 67-column 4, line 5).

41. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add 0.1-15 at% oxygen as taught by Suzuki et al to the magnetic layer of Futamoto et al.

42. One would have been motivated to make this modification due to the teaching in Suzuki et al. that adding oxygen to the magnetic layer of a recording medium improves the noise of the medium.

43. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. as applied to claim 1 above, and further in view of Wu et al. (US6218003).

44. Futamoto et al. does not teach a non-magnetic metal ground layer that contains at least one material selected from oxides, nitrides, carbides, and carbon, as required by claim 9, specifically one of the oxides, nitrides, or carbides listed by claim 10.

45. However, Wu et al. teaches that the recording density, coercivity, signal to noise ratio, and signal pulse characteristics of a magnetic recording medium can be improved by adding TiO₂ to a Cr alloy underlayer utilized in the media (column 3, lines 1-7).

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46. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add TiO_2 as taught by Wu et al. to the CoRu_xCr_y alloy underlayer taught by Futamoto et al.

47. One would be motivated to make such a modification due to the teaching in Wu et al that the magnetic properties of a magnetic recording medium can be improved by adding TiO_2 to a Cr alloy underlayer utilized in the formation of the media, and the fact that the CoRu_xCr_y underlayer utilized in Futamoto et al. is a Cr alloy underlayer.

48. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. as applied to claim 1 above, and further in view of Ranjan et al. (US5976326).

49. Futamoto et al. does not teach a magnetic layer that contains an oxide, nitride, boride, or carbide, formed in a granular structure, as required by claim 14.

50. However, Ranjan et al. teaches that adding an oxide or nitride to the magnetic layer of a magnetic recording medium reduces the amount of media noise exhibited by the medium (column 4, lines 30-38).

51. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an oxide or nitride as taught by Ranjan et al. into the magnetic layer of Futamoto et al.

52. One would have been motivated to make such a modification due to the teaching in Ranjan et al. that adding an oxide or nitride into the magnetic layer of a recording medium reduces media noise.

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53. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. modified by Honda et al. as applied to claims 1 and 15 above, and further in view of Ishikawa et al (US5750230). For the purpose of this examination, the examiner interprets claim 16 to require the separation layer to be one of the oxides, nitrides, or carbides listed, a mixture of an oxide, nitride, or carbide with one of the elements listed earlier in the claim, or a layer of Ru or Ru alloy that is mixed with an oxide, nitride, or carbide of one of the elements listed. Please see the section above for a discussion of the 112 issues in this claim.

54. Futamoto et al. as modified by Honda et al. above does not teach a separation layer comprising one of the oxides, nitrides, or carbides listed in claim 16, or a mixture of one of these compounds with one of the elements listed in group 1 of claim 16.

55. However, Ishikawa et al. teaches that a recording medium utilizing multiple magnetic layers exhibiting improved noise and sliding strength is formed when an intermediate layer comprising an oxide or nitride of Si (i.e SiO_2 , Si_3N_4) is used to separate the magnetic layers (column 7, lines 30-column 8, line 15).

56. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an oxide or nitride of Si as taught by Ishikawa et al. as the intermediate layer used in Futamoto et al. modified by Honda et al.

57. One would have been motivated to make such a modification due to the teaching in Ishikawa et al. that the noise and sliding characteristics of a recording medium are improved by using an oxide or nitride of Si to separate the magnetic layers from one another.

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58. Regarding the specific selection of Si from the elements listed in Ishikawa et al. It has been held that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency.

Response to Arguments

59. Applicant's arguments filed 4/14/03 have been fully considered but they are not persuasive.

60. In the instant case, the applicants have argued on the record that the applied prior art does not teach the applicants requirement of a non-magnetic metal ground layer on a main surface side of a substrate and containing at least 20 at% Ru.

Applicant's argue that the prior art of Futamoto teaches a substrate that is covered with a bilayer underlayer, wherein the first underlayer is adjacent the substrate, and the second underlayer is overtop the first underlayer and comprises a Ru alloy. The applicant's assert that because the 2nd underlayer is formed overtop the first underlayer it does not meet the applicants requirement of an non-magnetic metal underlayer on a main surface side of a substrate. This argument is unpersuasive. As was made clear in this and the prior office action (see section 11 of this action, and section 16 of the prior office action), the examiner, while interpreting the claims in light of the specification, must also give the claims their broadest reasonable interpretation. Bearing this in mind, the applicant should note that the examiner interprets "formed on" as recited in the instant claims to allow for additional layers to be present between one layer and another layer that the first layer is "formed on." More succinctly, "formed on" is not interpreted by the examiner as "directly adjacent to," or "directly on the surface of" another layer. Thus,

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applicants arguments are moot, as they are directed to claim language that is narrower than that utilized by the applicant in the instant claims.

61. Additionally, the applicant's have argued on the record that the applied prior art does not teach the requirement of a "a non-magnetic groundlayer formed on a main surface side of the non-magnetic substrate containing Ru, at at least 20 at%" and "wherein the non-magnetic metal groundlayer is a constructed by layering a plurality of layers, each layer including Ru at at least 20 at% and different compositions containing Ru and an element other than Ru."

62. This argument appears to be directed towards an amendment that was never made. More specifically, the above argument is directed towards the addition of the limitations "wherein the non-magnetic metal ground layer is constructed by layering a plurality of layers, wherein each layer includes Ru at at least 20 at % and different compositions containing Ru and an element other than Ru" to claim 1, as is stated on page 7 lines 1-6 of the arguments. **This amendment was never made.** The applicant amended claim 2 to contain these limitations in this amendment, not claim 1. However, **claim 2 was cancelled by this amendment.** Accordingly, this argument is unpersuasive as it is directed towards claim limitations that are **not present**.

63. All of the applicant's other arguments are dependent on the above two arguments. As the above two arguments have effectively been rendered moot, the applicants additional arguments are also unpersuasive in overcoming the applied prior art.

Conclusion

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64. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

WU
5/28/03


Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700